McGraw-Hill Dictionary of Scientific and Technical Terms

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rface of geometric regularity. [MINERAL] *See* rock crystal. ('krist·əl)

ystal activity [ELECTR] A measure of the amplitude of ibration of a piezoelectric crystal plate under specified condi-ons. ('krist·əl ak'tiv·əd·ē)

ystal aerugo *See* cupric acetate. ('krist·əl ē'rü·gō)

ystal audio receiver [ELECTR] Similar to the crystal-video eceiver except for the path detection bandwidth which is audio ather than video. ('krist·əl 'od·ē·ō ri'sē·vər)

ystal axis [CRYSTAL] A reference axis used for the vectoral roperties of a crystal. ('krist·əl 'ak·səs)

ystal base [CRYSTAL] The contents of a primitive cell of a rystal. ('krist·əl 'bās)

ystal blank [ELECTR] The result of the final cutting opera-ion on a piezoelectric or semiconductor crystal. ('krist·əl blaŋk)

ystal calibrator [ELECTR] A crystal-controlled oscillator sed as a reference standard to check frequencies. ('krist·əl kal·ə,brād·ər)

ystal cartridge [ENG ACOUS] A piezoelectric unit used with stylus in a phonograph pickup to convert disk recordings into udio-frequency signals, or used with a diaphragm in a crystal icrophone to convert sound waves into af signals. ('krist·əl kär·trij)

ystal chemistry [CRYSTAL] The study of the crystalline tructure and properties of a mineral or other solid. ('krist·əl kem·ə·strē)

ystal class [CRYSTAL] One of 32 categories of crystals ccording to the inversions, rotations about an axis, reflections, nd combinations of these which leaves the crystal invariant. lso known as symmetry class. ('krist·əl 'klas)

ystal clock [HOROL] A clock which uses the mechanical esonance of a crystal plate coupled piezoelectrically into an lectronic circuit. ('krist·əl ˌkläk)

ystal control [ELECTR] Control of the frequency of an os-illator by means of a quartz crystal unit. ('krist·əl kən'trōl)

ystal-controlled oscillator [ELECTR] An oscillator whose requency of operation is controlled by a crystal unit. ('krist·əl kən'trōld äs·ə'lād·ər)

ystal-controlled transmitter [ELECTR] A transmitter whose carrier frequency is directly controlled by the electro-echanical characteristics of a quartz crystal unit. ('krist·əl kən'trōld 'tranz·mid·ər)

ystal counter [NUCLEO] A particle detector in which the ensitive material is a dielectric (nonconducting) crystal ounted between two metallic electrodes. ('krist·əl 'kaunt·ər)

ystal current [ELECTR] The actual alternating current flow-ng through a crystal unit. ('krist·əl ˌkər·ənt)

ystal cutter [ENG ACOUS] A cutter in which the mechanical isplacements of the recording stylus are derived from the de-ormations of a crystal having piezoelectric properties. ('krist·əl ˌkəd·ər)

ystal defect [CRYSTAL] Any departure from crystal sym-metry caused by free surfaces, disorder, impurities, vacancies nd interstitials, dislocations, lattice vibrations, and grain oundaries. Also known as lattice defect. ('krist·əl 'dē,fekt)

ystal detector [ELECTR] **1.** A crystal diode, or an equivalent ar-crystal-cat-whisker combination, used to rectify a modu-ated radio-frequency signal to obtain the audio or video signal irectly. **2.** A crystal diode used in a microwave receiver to ombine an incoming radio-frequency signal with a local oscil-ator signal to produce an intermediate-frequency signal. ('krist·əl di'tek·tər)

Crystal diffraction [SOLID STATE] Diffraction by a crystal of eams of x-rays, neutrons, or electrons whose wavelengths (or e Broglie wavelengths) are comparable with the interatomic pacing of the crystal. ('krist·əl di'frak·shən)

Crystal diffraction spectrometer *See* Bragg spectrometer. ('krist·əl di'frak·shən spek'träm·əd·ər)

Crystal diode *See* semiconductor diode. ('krist·əl 'dī,ōd)

Crystal dynamics *See* lattice dynamics. ('krist·əl də'nam·iks)

Crystal face [CRYSTAL] One of the outward planar surfaces which define a crystal and reflect its internal structure. Also known as face. ('krist·əl ˌfās)

Crystal field theory [PHYS CHEM] The theory which assumes that the ligands of a coordination compound are the sources of negative charge which perturb the energy levels of the central metal ion and thus subject the metal ion to an electric field analogous to that within an ionic crystalline lattice. ('krist·əl ˌfēld ˌthē·ə·rē)

crystal filter [ELECTR] A highly selective tuned circuit employing one or more quartz crystals; sometimes used in intermediate-frequency amplifiers of communication receivers to improve the selectivity. ('krist·əl 'fil·tər)

crystal form [CRYSTAL] A collection of crystal faces generated by operating on a single face with a subgroup of the symmetry elements of the crystal class. ('krist·əl 'fȯrm)

crystal glass [MATER] A water-clear lead glass which polishes readily and has a high index of refraction. ('krist·əl ˌglas)

crystal gliding [CRYSTAL] Slip along a crystal plane due to plastic deformation; often produces crystal twins. Also known as translation gliding. ('krist·əl ˌglīd·iŋ)

crystal grating [SPECT] A diffraction grating for gamma rays or x-rays which uses the equally spaced lattice planes of a crystal. ('krist·əl ˌgrād·iŋ)

crystal growth [CRYSTAL] The growth of a crystal, which involves diffusion of the molecules of the crystallizing substance to the surface of the crystal, diffusion of these molecules over the crystal surface to special sites on the surface, incorporation of molecules into the surface at these sites, and diffusion of heat away from the surface. ('krist·əl ˌgrōth)

crystal habit [CRYSTAL] The size and shape of the crystals in a crystalline solid. Also known as habit. ('krist·əl ˌhab·ət)

crystal harmonic generator [ELECTR] A type of crystal-controlled oscillator which produces an output rich in harmonics (overtones or multiples) of its fundamental frequency. ('krist·əl här'män·ik 'jen·ə,rād·ər)

crystal headphones [ENG ACOUS] Headphones using Rochelle salt or other crystal elements to convert audio-frequency signals into sound waves. Also known as ceramic earphones. ('krist·əl 'hed,fōnz)

crystal holder [DES ENG] A housing designed to provide proper support, mechanical protection, and connections for a quartz crystal plate. ('krist·əl ˌhōl·dər)

crystal hydrophone [ENG ACOUS] A crystal microphone that responds to waterborne sound waves. ('krist·əl 'hī·drə,fōn)

crystal indices *See* Miller indices. ('krist·əl 'in·də,sēz)

crystal laser [OPTICS] A laser that uses a pure crystal of ruby or other material for generating a coherent beam of output light. ('krist·əl 'lā·zər)

crystal lattice [CRYSTAL] A lattice from which the structure of a crystal may be obtained by associating with every lattice point an assembly of atoms identical in composition, arrangement, and orientation. ('krist·əl 'lad·əs)

crystal-lattice filter [ELECTR] A crystal filter that uses two matched pairs of series crystals and a higher-frequency matched pair of shunt or lattice crystals. ('krist·əl 'lad·əs ˌfil·tər)

crystalliferous bacteria [MICROBIO] *Bacillus thuringiensis* and related species characterized by the formation of a protein crystal in the sporangium at the time of spore formation. ('kris·tə,lif·ə·rəs bak'tir·ē·ə)

crystalline [CRYSTAL] Of, pertaining to, resembling, or composed of crystals. ('kris·tə·lən)

crystalline alumina [MATER] An abrasive which consists of essentially the same mineral as corundum, but whose physical properties such as crystal structure, size, and shape of grain are so controlled as to produce the most desirable abrasives for specific types of grinding. ('kris·tə·lən ə'lüm·ə·nə)

crystalline anisotropy [SOLID STATE] The tendency of crystals to have different properties in different directions; for example, a ferromagnet will spontaneously magnetize along certain crystallographic axes. ('kris·tə·lən an·ə'sä·trə·pē)

crystalline chloral *See* chloral hydrate. ('kris·tə·lən 'klȯr·əl)

crystalline double refraction [OPTICS] The splitting which a wavefront experiences when a wave disturbance propagates through an anisotropic crystal. ('kris·tə·lən 'dəb·əl ri'frak·shən)

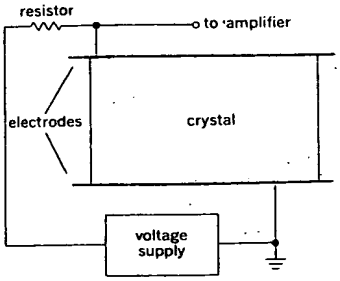
crystalline field [SOLID STATE] The internal electric field in a solid due to localized charges, especially ions, inside. ('kris·tə·lən 'fēld)

crystalline fracture [MET] A break in a polycrystalline metal, with the fractured surface having a grainy appearance. ('kris·tə·lən 'frak·chər)

crystalline frost [HYD] Hoarfrost that exhibits a relatively simple macroscopic crystalline structure. ('kris·tə·lən 'frȯst)

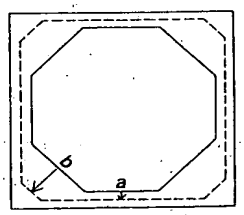
crystalline-granular texture [PETR] A primary texture of an

CRYSTAL COUNTER



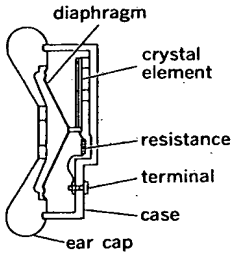
Circuit diagram of a crystal counter.

CRYSTAL GROWTH



Schematic representation of cross section of crystal at three stages of growth; *a* represents slower growing faces, *b* faster growing faces.

CRYSTAL HEADPHONES



Section through a crystal headphone.